

1 **Bumper 8**

2  
3 **50th Anniversary of the First Launch on Cape**  
4  
5 **Canaveral**

6 **Mr. Richard Jones' Oral History**  
7  
8 **Kennedy Space Center**  
9 **Held on September 25, 2000**  
10

11  
12  
13  
14  
15  
16 **Interviewers: Dr. Roger Launius, NASA HQ**  
17 **Dr. Lori Walters, Florida State University**  
18 **Mr. Stanley Starr, Dynacs, Inc.**  
19

20  
21 **Transcription: Maria Ray & Mary Baldwin**  
22 **Dynacs, Inc., Engineering Development Contract**  
23 **Kennedy Space Center**  
24  
25

**Bumper 8**

**50th Anniversary of the First Launch on Cape  
Canaveral**

**Mr. Richard Jones' Oral History**

**Kennedy Space Center**


**Held on September 25, 2000**

Approval Signature/Date Sheet

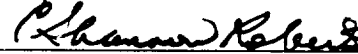
Stanley Starr  
Dynacs Inc.

 3/5/01


Elaine Liston  
InDyne, Inc.

 3/6/01

Shannon Roberts  
NASA, KSC External Relations

 3/6/01

Roger Launius  
NASA, HQ History Office

 3/6/2001

All redlines from all participants have been incorporated in this transcription  
as of March 2, 2001

1 Roger Launius: It's the 25th of September of 2000. We're in Indialantic, Florida. We're  
2 talking to Dick Jones about the Bumper Project specifically and about other aspects associated  
3 with his career in space flight and rocketry. Dick, could you tell us a little bit about your  
4 background, your parents, where and when you were born, a little bit about your upbringing.  
5

6 Richard Jones: Ok. I was born in Brooklyn, New York on August the 25<sup>th</sup>, 1924, now you know  
7 my age. Eventually, my parents moved to Kingston, Pennsylvania right outside of Wilkes Barre.  
8 That's essentially where I grew up. I went to grade school, high school, played high school  
9 football and then I immediately, after graduating high school, went to college. I did not finish  
10 because Uncle Sam called me. I eventually went to Fort McCullen, Alabama where I conducted  
11 my basic training. I was held over there as part of the cadre to train others, and I guess it was in  
12 late 1942 I was shipped off to the African Italian campaign joining the 175 Field Artillery as a  
13 signal corp NCO.  
14

15 Launius: Ok.  
16

17 Jones: I got into combat just prior to the San Pietro campaign. We did San Pietro which was  
18 pretty bloody, then Casino, and that was worse. After that, we migrated up to Poe Valley and  
19 the end of the war found us in Milan. Seeing Benito Mussolini hanging by his feet and his  
20 girlfriend and that was the end of the war. We actually went up into the Italian Alps to secure  
21 the remnants of the German soldiers that were left. And actually, we took them prisoners but  
22 we treated them pretty well because the war was over. I stayed in the Occupation Force in a  
23 place called Savigliano, Italy near Trieste and then was shipped home. I reported after getting  
24 back from overseas, I reported to Fort Monmouth, New Jersey.  
25

1 Launius: Was this still in 1945 or 1946 by now?

2  
3 Jones: It was 1945.

4  
5 Launius: 1945, ok.

6  
7 Jones: I met with the director of Evan Signal Lab there. He said I understand you want to get  
8 out of the service. I'd like to consider one project we have which would be a really good job for  
9 you. It's a place called White Sands Proving Ground and we're shooting missiles off there. My  
10 question to him was, why shoot missiles, the war is over. Well, it's a project that the Army is  
11 conducting as part of the Hermes Project and we need a good signal team to go out there and  
12 set up that range. So, I went home and talked to my folks about it. And I said that's what I'm  
13 going to do. So I went out to White Sands, took a quick look around, saw they really had  
14 nothing. They had a bunch of instrumentation sites up range that they wanted to put telemetry,  
15 radar, optics but they didn't have much equipment in those days. It wasn't fancy like we have  
16 on the test range here now. We had old WORLD WAR II equipment, SCR 584s tracking radars.  
17 And of course, that's essentially what we used when we got here and are still using to some  
18 extent. So the project was to link all these sites together and the only thing we had were open  
19 wire lines. And the sand was always blowing and the open wire lines were always singing. And  
20 when you tried to talk over them all you heard was static. That's when we went to the business  
21 of the Alamo lookout, using radio equipment. I won't call it microwave. It was really FM  
22 equipment.

23  
24 Launius: Alright.

1 Jones: With telephone carry equipment attached to it. Four channels for each one. We could  
2 put as many as up to 16 channels and we used that to communicate from the White Sands  
3 Launch area to the instrumentation sites up range.

4  
5 Launius: Ok.

6  
7 Jones: McGregor Range, Tularosa, Peak, Carizoso, Trinity sites. Several others up range and  
8 so that essentially was the job. We launched about 67 V2 rockets and 6 Bumpers with mild  
9 success, very mild. Because we had some difficulty in the guidance system of the V2, it didn't  
10 always go where it was pointed. We did have a couple land, one landed in a farm in Juarez,  
11 Mexico, that was really a Hermes rocket that landed in Mexico, a lot of people thought it was a  
12 V2 but it wasn't, it was a Hermes. But we had them landing pretty close to Las Cruces some of  
13 them got a little energetic came pretty close to Albuquerque, so it was decided at that point to  
14 look for a new test range. Because we had the problem with landing in Mexico, the President of  
15 Mexico did not look kindly to us going to Pacific Missile Range and launching over the Baja  
16 Peninsula.

17  
18 Launius: Right.

19  
20 Jones: We took a look at Wallops Island, we took a look at a place called Cape Canaveral,  
21 Florida. It was decided on Cape Canaveral for several reasons. One, looking at the chain of  
22 islands down in the Bahamas, we had an island about every 150 miles.

23  
24 Launius: Ok.

1 Jones: There was enough acreage at Cape Canaveral that was government-owned that there  
2 wasn't a problem in securing land. We did have people living out there and we certainly had to  
3 try and convince them to leave. I think we paid some people who were very reluctant to leave.  
4 That was their land, they didn't want to go but eventually they were talked into it. And as you  
5 know now, there are no people living on the Cape. We do have a couple of cemeteries there.

6  
7 Launius: Right.

8  
9 Jones: So, that was chosen as the site for the first launch of the Bumper, which was later  
10 known as Complex 3 was right out on the point. There was no port at that time. You drove  
11 directly from Cape Canaveral to the lighthouse on a dirt road. From the lighthouse if you  
12 wanted to go any where else you had to go through savannas, marshes, rattlesnakes, alligators,  
13 mosquitoes, millions of mosquitoes, that's why we never ventured very far for that first launch  
14 from the lighthouse. That's why it's so close, nobody wanted to go any further. We found a  
15 good dry spot, which is now Complex 3 and we backed up towards what is now known, as what  
16 was originally known as Central Control, Central Control Road if you look at the Cape now. We  
17 went up that area and we were able to cut a kind of dirt road up there where we could establish  
18 a kind of like a Central Control point. We had to lay cables from that point to Complex 3. That  
19 was essentially how we conducted the two Bumper shots.

20  
21 Launius: Ok. Let's back up and talk a little bit more about White Sands.

22  
23 Jones: Ok.  
24  
25

1 Launius: When you went out there and you set up the communication system at White Sands  
2 for the V2 launches, you said a moment ago, most of them didn't do very well. Of course, they  
3 had a guidance problem and one, Hermes ended up in Juarez, and. Did you hear from anyone  
4 what the nature of those problems were in terms of guidance.

5  
6 Jones: Oh yeah. Yes. Guidance, predominately. The V2 has an inertial guidance system in it,  
7 I mean it's not guided from the ground or anything, it's programmed. That system did not have  
8 a high degree of reliability. Sometimes it would, instead of programming in other words, lifting  
9 off and programming to the North, it wouldn't program. It would stay straight up, burn out and  
10 come right back down.

11  
12 Launius: Same place.

13  
14 Jones: Near the Control Center. Sometimes the guidance platform would steer it the other  
15 way. In those days, we had a bad problem with instrumentation. See the V2 isn't initially  
16 equipped with any telemetry or any kind of radar guidance or any thing like that. So in putting  
17 telemetry on it, we were using 30 & 40 megahertz systems that were never designed for that.  
18 The G force of the missile often destroyed the system. We'd get good telemetry readings for 30  
19 – 40 seconds and then it would drop out. It would be gone. So we had to do everything  
20 visually. So, there were a lot of problems associated with using the V2 as a research vehicle  
21 as opposed to a weapon, and it was designed as a weapon. Shoot it like an artillery shell, that's  
22 the way the Germans did, program it some where towards the British Isles and see what would  
23 happen. Same way with the V1, the British call it the Doodle Bug, that was programmed and it  
24 terminated its flight when it ran out of fuel. The British will tell you, that when they stopped  
25 hearing the strange noise that the V1 made, they knew it was coming down.

1 Launius: Right. The Buzz Bomb.

2  
3 Jones: Yes, basically, that's what the problems were with the V2.

4  
5 Launius: Ok. That particular vehicle was viewed as kind of the forerunner of things that the  
6 United States did in rocketry after World War II. Was there a sense out there at White Sands,  
7 that all those captured V2s that were brought back and of course, the German rocket team that  
8 came back with them, that these were really impressive in comparison with the kinds of rockets  
9 that the United States had been developing, like the WAC corporal. Was there any sense that  
10 boy, this is really a cool piece of technology?

11  
12 Jones: Yes. There was a couple of things that made the V2 a very important discovery for us.  
13 One was the, system of mixing fuels, liquid oxygen, and in those days alcohol. How to control  
14 the combustion and the way the V2 rocket engine combustion chamber was built. The  
15 technique they used of sodium permanganate to inject into the liquid oxygen and alcohol, which  
16 created a tremendous amount of heat, and around the V2 rocket there was water, around the  
17 combustion chamber and that water turned into steam and the steam ran a pump that pumped  
18 the liquid oxygen and the alcohol into the combustion chamber. That was pretty novel, the way  
19 they did that. Very good ideas. It was used as I think, the basis of the Redstone and probably  
20 the Titan. If you take a look at the V2 rocket engine we have at the museum now, you can see  
21 how that worked.

22  
23 Launius: Ok. What was it like to see a V2 take off? Did it shoot up very fast, was it a slow  
24 riser, was there a great roar and a kind of a thumping of the chest as the compression of air  
25 came towards you?



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

Jones: No. It rose pretty fast as compared to an Atlas or Titan or even a Redstone because it didn't have all that weight to lift that those other rockets do. The roar wasn't all that great, I didn't think, nothing like a Saturn taking off where you can feel the impact against your face. I'm trying to think of the thrust of the V2 but it was some where. I don't know, do any of you know the thrust of the V2?

Stan Starr: 28 tons. Book value.

Jones: And the Apollo was, 5 million?

Starr: 5 times 1.5

Launius: Yes, 7.5 million in the first stage.

Jones: So we're talking about this versus this.

Launius: Right. [Laughter] In terms of White Sands, what were the things about it that you liked the most and that are most memorable to you.

Jones: I loved that place. Almost as much as I like it here. At first, I when I went out there I thought God had forsaken me because it was really a desolate place. The sand blew all the time. You had sand in your eyes, sand in your mouth, all the equipment had sand in it. That's why it was such a relief for us to get up in the mountains. Even though it was freezing cold, it was such a relief. I took a personal interest in the geography and geology out there. The White Sands monument is something to behold. It's about, I think about 38 – 40 square miles of pure

1 white gypsum sand. It's so white that when the sun shines on it you can't look at it , you have to  
2 look away or put real thick dark glasses on. It ends as abruptly as it starts. How it formed there  
3 was coming down from way, way, way prehistoric times, the runoff from the mountains, the San  
4 Andres and Sacramento's, washed down all of this gypsum. At that time, the Tularosa Valley  
5 was not dry, it had a lot of lakes in it. Now of course, it's dessert but that white sand still stays  
6 there. And interestingly enough it moves towards the North every year by a couple of inches.  
7 In other words, ten years ago, I could have put a stake in the ground and I would see twenty  
8 inches further up range. The whole system moves. Then, right north of the White Sands are  
9 two lava beds. No one really knows how they got there. All of the animals in the lava bed are  
10 black. The rabbits are black, squirrels are black, even the snakes are black even though they're  
11 rattlesnakes. Likewise any animals that venture in the white sand eventually turn that color. Up  
12 in the mountains, there are all kinds of wildlife, there's mountain lions, bobcats, no snakes,  
13 never saw a snake up in the mountains. Deer, some moose, so it's really an interesting place to  
14 live. I really hated leaving there.

15  
16 Launius: Ok. What were some of things you dislike? Anything in particular?

17  
18 Jones: Just the dryness of it. You can't get enough water to drink. And we drank other things  
19 too. The sand blows constantly. It's in everything. You go get in bed at night, and you turn  
20 down your bed and there's sand all over your bed. We used to take the blanket and shake it out  
21 so the sand would come off it. The people were really nice out there. Initially, they thought we  
22 were all crazy and we probably were. But they couldn't understand what we were doing. They  
23 were somewhat sensitive because just before that, they had set off the first atomic bomb out  
24 there. And a lot of the people, particularly the Mexicans in Alamogordo lost their windows, blew  
25 their windows in, blew part of their roofs off. So they were anticipating more of that. They  
weren't very happy with those crazy guys shooting things up in the air out there. But by in large,

1 it was a pretty nice place to work. Today, the White Sands Missile Range is probably one of the  
2 most precise places to test anything. You can test infrared red devices, they test ordnance  
3 there, of course, the Air Force's High Speed Track is there at Holloman. So there's all kinds of  
4 testing being done there. It's a national range, it's Tri-Services as well as NASA. They have  
5 some excellent facilities there. It's all very modern, microwave all over the place. Really well  
6 done.

7  
8 Launius: Ok. Your unit that you were with there, how many people were in it? Do you have  
9 any idea? Do you recall?

10  
11 Jones: Yes, 45.

12  
13 Launius: Ok. Was that the sum total of the people doing the communication? Or was there  
14 some more?

15  
16 Jones: Yes, that was it.

17  
18 Launius: Ok. Did you come as a unit to Florida?

19  
20 Jones: No, we came as stragglers. Many of the 45 that we had at White Sands did not come. I  
21 think 12 of us came. Many went back to Fort Monmouth, some went to Huntsville and I was one  
22 of the 12 that came here.

23  
24 Launius: Ok. And when did you come over to the Cape?  
25

1 Jones: I got here the first time, in June of 1949 and then I went back to Fort Monmouth, and we  
2 had some people putting together some vans with frequency monitoring equipment and  
3 communications equipment and then back in November of 49 I got here permanently.

4  
5 Launius: I had a note here to ask you could explain DOVAP and how it was used.

6  
7 Jones: Yeah.

8  
9 Launius: I assume that's an acronym, DOVAP.

10  
11 Jones: Yeah, Doppler Velocity and Position. That's what it stands for. A man who became a  
12 good friend of mine, Carl Sendler, who was a German, he was part of the German crew. He  
13 and I worked together at White Sands. He was not involved in the launching of the V2, he was  
14 more concerned with the instrumentation part of it. He invented the DOVAP system. He had  
15 started working on it in Peenemünde and of course, when the war ended that ended that. Dr.  
16 Debus encouraged him to continue it here. It allowed the ground, just like an engine train  
17 whistle going through the train. The pitch of the whistle doesn't change but the pitch in your ear  
18 changes when it goes by you.

19  
20 Launius: Right. Whether it's coming in or receding.

21  
22 Jones: That's the principle of the Doppler Velocity and Position measurement system. And you  
23 put several receiving stations or really interrogating stations on the ground. Then by the  
24 transponder in the missile transmission to those stations, you can tell the speed which it's going  
25 and the position based on how that frequency change at those different sites.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

Launius: OK

Jones: That's basically the way it works. It was used to, you interrogated it at 36.94 megahertz and you came back at twice that. 73 point something.

Launius: Alright. And you used it at White Sands?

Jones: We used it at White Sands and we used it here.

Launius: You used it at both places.

Jones: Yup.

Launius: Ok. How did the culture that you found when you arrived at the Cape in 1949 compared to what you had experienced at White Sands? Obviously, there wasn't as much activity at that point. But...

Jones: There wasn't any.

Launius: Ok. None at all?

Jones: No. Patrick was not Patrick. It was the closed up Banana River Naval Air Station. When I got here, some of my friends were set up in what is now Hangar 752. All the windows were blown out of it, just had been knocked out for some reason or other. Colonel Hal Turner

1 was our boss at White Sands. He was the first commander here. He was an Army Ordnance  
2 Colonel. Eventually, the girl that was his secretary became my wife. He set up the HQ he set  
3 up the plan to go to the Cape. He was physically involved in everything. He tromped all over the  
4 Cape with us. There wasn't a lot of "this is a Commander, this is the next in Command". We  
5 just worked as a team. If we were pulling cable, he might be at the one end of the cable pulling  
6 it out. If we were setting up an antennae somewhere, he was there working with us. It was a  
7 small group of people trying to accomplish a job that we weren't quite sure what we were doing  
8 and why. But we did it. The people here in Cocoa Beach were real supportive. I remember  
9 coming across, you know the 520 wasn't there in those days, you came across two wooden  
10 bridges from Cocoa and you ended up on land on the beach where it is now known as the  
11 Minuteman Causeway. Right on the corner of the Minuteman Causeway was a place called  
12 Bernard's. Bernard became our friend. He ran a little fish and chip bar there. We used to go  
13 there for lunch and we kept telling him he ought to expand that little shack because this place is  
14 really going to grow and he said I'm not too sure about that. Eventually, he did. And of course,  
15 Bernard's Surf is still there today even though he is long gone. The people on the Cape that  
16 had to get out of the way were not very sympathetic to our efforts. They couldn't understand  
17 why they couldn't stay there and let us do what we were doing because it wasn't their land we  
18 were on. But it was a safety consideration and a security consideration. There was not a high  
19 degree of security but there was more a security of let's not get people snooping around on  
20 what we were doing and getting in the way and getting a misconception of what we were trying  
21 to do. We had some reporters from the Orlando Sentinel, I remember, there was no Florida  
22 Today, there was the Melbourne Times, was the big local rag here. They were all trying to  
23 snoop around what we were doing, asking a lot of questions. By in large, I think the people here  
24 supported us greatly. They gave us good press coverage and I think they were pretty nice.

1 Launius: Do you have a sense of how many people lived on the Cape at that time that had to  
2 be relocated?

3  
4 Jones: About 20, I think.  
5

6 Launius: So we're just talking about 3 or 4 families, probably.  
7

8 Jones: Oh yeah, yeah.  
9

10 Launius: So a very small group.  
11

12 Jones: Yeah.  
13

14 Launius: You grew up in the North, you were in White Sands for a while, you spent time  
15 overseas during World War II, then you came to Florida. Florida in those days was a  
16 segregated society and obviously times have changed technologically, there wasn't air  
17 conditioning and things of this nature. Was Florida in any sense a culture shock? Did you  
18 experience things that you never experienced before here?  
19

20 Jones: No, not really. The culture shock was in White Sands. I went out to White Sands,  
21 Alamogordo and Tularosa about 6 or 7 years ago, I didn't recognize the place. I remember  
22 Alamogordo as one street, dirt, with Mexican adobe houses on either side of the street and  
23 railroad tie plant creosol ties in Alamogordo and I think that was only industry there. There were  
24 a couple bars, no hotels. There was a drug store, a grocery store and that was it. A couple of  
25

1 churches, a Catholic church and a couple Protestant Churches. That was it. Here I think it was  
2 more modern really.

3  
4 Launius: Really?

5  
6 Jones: This place had begun to grow. It stayed dormant for so long. Actually, Miami and Ft.  
7 Lauderdale and West Palm built up before this did. This was only like a weigh station. People  
8 would come down by rail to Cocoa, get off the train and get on a barge and go down the Indian  
9 River to Ft. Lauderdale, Miami. Not many stayed here. But I think that the culture had already  
10 begun to modernize. Melbourne was a very nice town, I chose to live there and I'm still living  
11 there.

12  
13 Launius: Ok. [Laughter] Cocoa Beach did it exist at that point?

14  
15 Jones: Yeah.

16  
17 Launius: Was there much there?

18  
19 Jones: No, not much. There was a few houses, not really much of anything.

20  
21 Launius: Ok. You talked during the group discussion about trying to set up radio links to the  
22 Islands of the range and finally requesting underwater hard lines. Did you do that work for  
23 Bumper Launches or after?

24  
25 Jones: No, after



1  
2 Launius: What time frame did that take place?

3  
4 Jones: We didn't need anything down range for the Bumper. We first needed the down range  
5 stations when we got into the Matador program and the Snark which were air breathers. The  
6 Matador had about, I would say, 150 –200 mile range. The Snark supposedly had a 5000 mile  
7 range. But when we got to the point when we needed instrumentation down range our first  
8 attempt at setting up a tracking station was in the Grand Bahama, West End settlement. We  
9 leased some telephone lines to Jupiter. We went up in the lighthouse in Jupiter and got  
10 permission to put some of that same microwave equipment that we used at White Sands on the  
11 top of the lighthouse and we could see West End from there.

12  
13 Launius: Really?

14  
15 Jones: Yes. And that was our communications there. Then we had to go to Eleuthera, and we  
16 tried to do that with HF radio and that wasn't very satisfactory. We got a proposal from AT&T to  
17 lay a submarine cable because we knew we were going to have to go down range as far as St.  
18 Lucia, that's about 1500 miles. We knew we would have to go Grand Bahama, Eleuthera, San  
19 Salvador, Mayaguana, Grand Turk, Dominican Republic, Mayaguez Puerto Rico and St. Lucia.  
20 We got permission from the Dept. of Defense to contract with AT&T to lay a submarine cable.  
21 The problem was submarine cables were normally, they weren't very modern in those days.  
22 They were used across the Atlantic for like Morse Code. They never handled voice or any kind  
23 of wide band stuff. A guy by the name of Jerry \_\_\_\_\_ was the AT&T engineer on the  
24 project from Winston-Salem, North Carolina, and he said if you can give me a stop off every 60  
25 to 70 miles, I could put in repeaters and give you some bandwidth.

1  
2 Launius: Ok.

3  
4 Jones: Attended or unattended and we could get you up to 150 kilocycle of bandwidth. We  
5 said hey, that's great. We had to lay that cable. So we got the cable laying ship to lay the  
6 cable. I didn't bring it with me but I have the track where we stopped. We went from here, from  
7 the Cape we stopped at, I think we stopped at an unattended repeat station at Jupiter and then  
8 we went from Jupiter over to Grand Bahama and then we went a small Atoll between Grand  
9 Bahama and Eleuthera and then at Eleuthera and there was another little island. So we  
10 accomplished that all the way down to Puerto Rico. We stopped at Puerto Rico because we  
11 didn't have the money or really the need to go to St. Lucia that quick. Eventually, St. Lucia  
12 became Antigua.

13  
14 Launius: Right

15  
16 Jones: Because St. Lucia was not in the best location that Antigua is today. Then as we  
17 progressed with that we did find the IT&T came in with a proposal some years later to lay a  
18 cable without the land repeaters. They put underwater repeaters and fed them by electricity  
19 through the cable while we were using it as an instrumentation site. And we could use that  
20 without, we just stopped at our tracking station and went all the way to Antigua with that. That  
21 since has been abandoned. We had several breaks in that cable. The cable was not very big, it  
22 was about that big around. On the bottom of the ocean particularly between Grand Turk and  
23 Puerto Rico there's a very volatile movement of the underwater floor and we'd get cave ins and  
24 it would break the cable. And then the cable and wireless would have to go out and drag for it.  
25 And I can remember them calling back and saying we've got the "bitter end". They'd find an end

1 and they'd go find the other end and they lay a cable between them and repair it that way. In  
2 the meantime, we're out of business. That's why we came to use single side band radio. And  
3 we're using that even to this day. We were assigned seven C54G aircraft to use as  
4 instrumentation aircraft but we only had AM radio with those. I had the job of going up to  
5 Department of the Air Force, this time I'm a civil servant, and communications director on the  
6 range. I had the job of going up Air Force and selling General Curtis Lemay on the idea that we  
7 should put these modern single side band radio in our C54 aircraft. I don't know if any of you  
8 know who General Leamy was.

9  
10 Launius: Sure.

11  
12 Jones: He was Chief of Staff and before that he was SAC commander. He was not the most,  
13 I'm trying to say this in the right way. He was not the nicest person to deal with.

14  
15 Launius: Right. Very strong personality.

16  
17 Jones: He threw me out of his office when I got up there. Course, he told me I had no business  
18 coming to talk to him about it. There were other channels. I said, "General, I don't have the  
19 time for the channels. We've got to have this done right away." So, I told him I was working for  
20 General Yates and I said I'm not allowed to come back without confirmation I can get those  
21 radios or else I will lose my job. He said, "well, you better start looking for another job then. All  
22 my current single sided band radios are going to SAC in B47s. Well, that's a shame with the  
23 high national priority we have." So, he sent me to talk to Shorty Burros, General Shorty Burros,  
24 who was his communications manager. While I was talking to Shorty he walked in the office in  
25

1 the Pentagon and said ok you can have your damn radios, now get the hell out of here.

2 [laughter] I got them! 618 S1s.

3  
4 Launius: When did this take place? Do you recall?

5  
6 Jones: 1958, probably '58.

7  
8 Launius: Ok. Do you recall when the first cable was laid? What year that was?

9  
10 Jones: Oh, yeah. That was probably I'd say '54, '55, comes to mind.

11  
12 Launius: Ok. Alright. And ITT came in with a cable at what point?

13  
14 Jones: That was the follow on. That was probably in the early 60's.

15  
16 Launius: You said you were civil servant by the time that you told the Lemay story. When did  
17 you get out?

18  
19 Jones: I was working down here during the Bumper and after the Bumper, Colonel Bill James  
20 was the Signal Corps commander here and I was the Master Sergeant at the time, and General  
21 Richardson, Air Force Brigadier General, they both knew me. Colonel James said to me we are  
22 nominating you for direct commission. I said, "well, what do I have to do. I don't know if I want  
23 it." He said, "you want it." So, what I had to do was go before a board in Orlando, an Army  
24 board of colonels and generals and the interview lasted 4 ½ hours.  
25

1 Launius: Wow.

2  
3 Jones: No decision. Just thank you very much, we'll let you know. In two days I had my  
4 commission. I was then sent to Fort Monmouth to go to the Signal School. I went there for 15  
5 weeks. Then I took command of a signal company, an electronic warfare company in Fort  
6 Monmouth, the 9468<sup>th</sup> technical service unit. Using the same old SCR584s as electronic  
7 jammers. I got orders to go to Korea. I had really had enough of fighting wars. I got beat up  
8 pretty bad in Italy, so I said what are my options. What can I do. I don't want to go. They gave  
9 me an option of going off active duty but staying in the reserves, and returning to civilian life.  
10 General Richardson said if you come back down here we'll put you on as civil service. I came  
11 back as GS7, communications engineer. I retired from civil service down here in 1969 as a  
12 GS16, electronics engineer tech director for the range. That was the end of my civil service  
13 career. Then I went to work for Raytheon up in the Boston area and I stayed there until 1990  
14 when I had since transferred my office down to Satellite Beach and I was running six contracts  
15 out of here. One at Vandenburg, one Kansas City, one at Goddard Space Flight Center, one  
16 here at Patrick, one at Colorado Springs, and one at the Air Force Academy.

17  
18 Launius: When you came out here for the Bumper to work that first time in 1949, did you  
19 anticipate that was a short term assignment and you'd be going back to White Sands or were  
20 you thinking of this as permanent?

21  
22 Jones: No, none of us were. We thought of this as an experiment. Didn't have any long range  
23 plans at that point.

1 Launius: I have a question that we've been asking everybody. What did you like the most and  
2 the least about the Cape area and living here?

3  
4 Jones: Oh, I liked the most the weather, I guess. The weather was nice. I like the people that I  
5 came in contact with. If you went into a store, if you wanted to buy something, if you wanted to  
6 rent a house, they were very affable about it. The least I liked about it, the place where you had  
7 to work out there. I didn't like fighting rattlesnakes all day long, some alligators but the  
8 mosquitoes was probably the worst thing, I'd ever seen in my life. I'd hold out my arm and it  
9 would be black with mosquitoes, just wipe them off like this. We ended up with 100 degrees  
10 weather with our heads covered with hoods, long sleeves, gloves.

11  
12 Launius: Mosquitoes thing.

13  
14 Jones: Yeah.

15  
16 Launius: Where did you stay when you arrived here? Did you stay at the base?

17  
18 Jones: I stayed at that the Base. I was single and I stayed in a room in Hangar 752.

19  
20 Launius: Ok. Was the whole unit there pretty much?

21  
22 Jones: Yes, pretty much so. We had some married, that lived in the local area.

23  
24 Launius: What were the greatest challenges that you faced when you first got here to set up  
25 the system? Any specific obstacles that you had to overcome?

1  
2 Jones: Yeah, we had nothing to work with. Only what we brought from White Sands or Fort  
3 Monmouth. That's all we had. Everything that we used for the Bumper was brought in from  
4 some other place, either White Sands, Huntsville, or Fort Monmouth. And there wasn't an Air  
5 Force in those days, there was a Army Air Corps.

6  
7 Launius: Ok. I've got maybe a half a dozen or so more questions that I specifically want to ask  
8 you. One of them, that some people have suggested is. In White Sands you had specific type  
9 of weather system that you dealt with in terms of launches. Mostly it was wind and sand I  
10 suspect. Here there were thunderstorms and in some cases, hurricanes. Did that effect any of  
11 the launch activities, especially during Bumper but at other times and how did you deal with  
12 those.

13  
14 Jones: We had pretty good weather during Bumper. We had a little bit of rain but other than  
15 that. We're talking July which was really into the hurricane season but the first hurricane I  
16 remember was, I think, I was at Jupiter when that occurred and it damaged Jupiter lighthouse. I  
17 can't remember what year it was. It was in the 50's , early 50's where they were still using the  
18 Jupiter lighthouse as a relay point out to West End, Bahamas.

19  
20 Launius: Ok. Were there any specific people that were here during the Bumper launches that  
21 you can recall, any good anecdotes about any individuals, something funny perhaps, something  
22 interesting, so forth.

23  
24 Jones: The funny part mainly were the Germans. I don't know if I dare say this. You can cut it  
25 out.

1  
2 Launius: Ok.

3  
4 Jones: We had a Redstone launch from 26 and Carl Sendler and I were in the blockhouse, the  
5 blast doors were closed and the launch went up pretty routinely and after, I don't know how  
6 many seconds, several of us ran to the blast doors to open them and look up at the missile  
7 because you're restricted in the blockhouse you can only see up to an angle of 45 degrees, ran  
8 outside and I remember Carl Sendler saying, see that beautiful bird, it's so nice looking pretty  
9 soon it's going to program down, Jesus Christ it's not programming get back in your blockhouse.  
10 [laughter] That was one of the IPBMs that came back down between the launch pad and the  
11 blockhouse.

12  
13 Launius: Ok, explain for the camera what a IPBM is.

14  
15 Jones: Inter-pad ballistic missile [laughter]

16  
17 Launius: You mentioned Carl Sendler, he was here at the Cape, and also out at White Sands,  
18 was he involved in many of the launches during the periods of the 40's and 50's?

19  
20 Jones: Oh, yeah, at White Sands he was involved in every one that I know of. He stayed here,  
21 Debus kept him here even after it became KSC. I talked to Carl the other day, he's living in  
22 Cocoa Beach, he's not well, I think he's 86 or 87 and he told me that his legs have given out on  
23 him and he just. I was trying to get him to come out for some of these affairs because he was  
24 very involved in all this early V2 stuff but he just couldn't do it, and he said, I can't make it.  
25



1 Launius: The Bumper launches were only after 5 years after World War II. Was there any  
2 resentment toward the German rocketeers who were working on them or they were here as part  
3 of the von Braun rocket team hold over from World War II or had we pretty much accepted them  
4 by that point.

5  
6 Jones: At the beginning there was a lot of resentment for, me for one. I was too fresh away  
7 from that to, but you know when you start working with people every day and there was  
8 resentment by the Germans towards us too at first. But a camaraderie builds up when your  
9 working around the clock, 24 hours, 48 hours, 72 hours without sleep and you're together out in  
10 the dessert working on tough problems, that kind of disappears.

11  
12 Launius: Are there any specific instances of either, and perhaps you don't want to say  
13 anything about it and that's fine if that's the case. But are there any specific instances that  
14 surfaced and there were animosity that were experienced? And are there any contrary to that.  
15 Are there any instances that you can speak to where those resentments broke down and you  
16 began to really work together.

17  
18 Jones: No, it was never that bad. We were in the service and the Germans were essentially, in  
19 the service, they're always in the service and we just put the mission first.

20  
21 Launius: Ok, alright. You were an Army unit, there was, I guess, a Navy activity that was  
22 located here and some Air Force as well. Was there inter-service rivalry?

23  
24 Jones: Not to my knowledge.  
25

1 Launius: Were you present when they constructed the pad? I have forgotten the pad number.

2 Pad 3.

3  
4 Jones: No, I was at Fort Monmouth at that time. Getting stuff ready to bring it down here for the  
5 first Bumper launch. But I knew what was going on.

6  
7 Launius: During our break, we talked a little about the Navy activities, and you mentioned  
8 some Coast Guard as well. Can you describe a little bit about what they were doing and how  
9 they did it.

10  
11 Jones: Try to clear ships away from the impact area off the coast. And that was the job of the  
12 Navy destroyers as well, to my recollection.

13  
14 Launius: Ok. Where there a lot of pleasure boats, private boats that were out here to watch  
15 things?

16  
17 Jones: No.

18  
19 Launius: To your knowledge were the famous Russian Trollers out here?

20  
21 Jones: No, not yet. We didn't see the Lomonosov till the first Atlas launch. We were aware  
22 that the Lomonosov was out there monitoring us.

23  
24 Launius: Ok.

1 Jones: It was a Russian Troller with so many antennas that... [laughter]

2  
3 Launius: Yes, they were famous. Stan, I think you said that the report on Bumper 8 was a  
4 failure. We've been told that Bumper 8 failed. Do you have any specific recollections about  
5 that?

6  
7 Jones: No, I thought it was successful.

8  
9 Launius: That was our thought was well. Ok.

10  
11 Starr: What we had been told was that the WAC failed to ignite and the nose cone came off and  
12 that telemetry was lost at that point. The thinking was that the nose cone broke off and that  
13 basically killed the WAC rocket. The V2 was normal.

14  
15 Jones: What nose cone?

16  
17 Starr: The nose cone of the WAC which has the telemetry equipment.

18  
19 Jones: The WAC wasn't very big.

20  
21 Launius: Right.

22  
23 Jones: As far as I know both 8 and 7 ignited to my knowledge. If someone knows something  
24 different than that, fine.

1 Launius: This sounds like an urban legend. To be perfectly honest.

3 Jones: I think 7 reached a higher altitude than 8 did.

5 Launius: Right.

7 Jones: But I don't know to what degree.

9 Launius: Here's a note from Stan. Aberdeen provided the airborne telemetry equipment, how  
10 did you interact with the Aberdeen people ?

12 Jones: Well, we had the ground station check out. We checked that out, the Aberdeen people  
13 had the telemetry transmitters on the bird itself and we had the ground station and prior to  
14 launch actually prior to fueling we checked it out. In those days we weren't worried about  
15 explosive ordnance problems like we are today. So we could freely radiate from the missile  
16 telemetry and we're only talking, in those days, a few watts. We could check it out with the  
17 ground station and make sure we were receiving the signal. Today, because of the higher  
18 power telemetry transmitters, most missiles have a cap over the telemetry antenna. That cap  
19 transmits to an antenna off the missile somewhere on either the launch pad or something like  
20 that for check out purposes. That stays on till launch and at launch they fly away from that. It  
21 just stays on the pad so you get actually exposed antenna after launch. That was because of  
22 the problem with explosive ordnance you got all these squibs on-board and we ran some tests  
23 with our HF radios and we could take a squib and hold the leads on a certain position and wave  
24 that on a stick in front of near the radiating pattern of a 45 kilowatt transmitter and it'll pop it.

1 Launius: Really?

2  
3 Jones: They use like dimple motors that's like a squib but the only activity on that when it's  
4 activated on the end it dimples out and what it really does is turn a switch on. Those things are  
5 activated very easily. So you got to be very careful with all this radiating on the pad that you  
6 don't end up blowing some squibs. And some of those squibs are for range safety purposes.  
7 You don't want those going off when the thing is fueled and sitting on the pad or you'll have a  
8 big bonfire.

9  
10 Launius: Ok. Another question from Stan. Radars were set up to track aircraft which travel up  
11 to several hundred miles per hour. What issues did you have with using radar for missiles  
12 traveling several thousand miles per hour?

13  
14 Jones: Tremendous issues. We tried skin tracking on the V2 and finally after months  
15 and months of trying to tune up our selsyns so that our dishes would track and placing  
16 the radars at different angles, you want the dish not to have to move too fast so you try  
17 to get behind the programming arc. Finally, Peter Hoffmanhyden, another German,  
18 came up with the idea of a beacon. We were using skin trackers we called it in those  
19 days; we would track just by the skin reflection of the bird itself; not very efficient, not  
20 very successful. So, Peter came up with the idea of placing a repeater beacon much  
21 like a DOVAP, but what would happen, the radar would interrogate the beacon, the  
22 beacon would send out a strong echo back and that strong echo back would drive the  
23 selsyns fast enough to allow you to track. We had to make a lot of adjustments in the  
24 mount itself because the selsyns turned the heavy gears on the antenna so we had to  
25 improve the gear ratio of the turn to the big round gears on it so they would track it. The

1 584 radars, which were gun-laying radars, eventually became the Mod II radars, which  
2 is a very sophisticated version of the 584 using beacon track. That was S-band, 2800  
3 megahertz, now they are using C-band, which is 5200 to 5300 megahertz the FPS 16,  
4 TPQ 18, you've heard of those I'm sure. That's what we're using today. But, basically  
5 the same principle - beacon track. It has higher frequency because it allows a sharper  
6 signal in and out, and less interference, by the way, because of less people using that.  
7 A lot of surveillance radars are using the S-band. As soon as you get an S-band  
8 slewing through the track of a gun-laying radar, it throws the track completely off. It has  
9 the same frequency so the radar doesn't know where the echo is coming from.

10  
11 Launius: With the experience that you had at White Sands, were there any technical  
12 lessons learned or any specific ones that you can recall that you incorporated into the  
13 communication system here at the Cape?

14  
15 Jones: Yes, we learned number one, don't use open wire if you can help it and stick to  
16 line-of-sight radio wherever you can and multiple that with telephone carrier equipment  
17 and get up as high in frequency as you can to avoid interference. I guess that's about it.

18  
19 Launius: Were there any specific lessons learned out of the Bumper Project that you  
20 applied later on that you can recall?

21  
22 Jones: Not that I can think of.  
23  
24  
25

1 Launius: OK. If you think of anything a little bit down the road, let me know. Bumper is  
2 pretty significant in lots of ways. Are there any memorable moments that you can recall  
3 fifty years after the fact that we ought to have recorded for posterity?  
4

5 Jones: Most of my recollections of the Bumpers were at White Sands and we had all  
6 kinds of experiences out there, from the V2 sitting on the pad and the Bumper taking off  
7 by itself, to the launch of the V2 and having the V2 come down with the Bumper still in  
8 the nose, the Bumper falling off the nose of the V2 one time; those kind of experiences.  
9

10 Launius: A couple of things about the local area; are you familiar with an establishment  
11 called the Chatter Box? That question came from Lori.  
12

13 Jones: No, what's the Chatter Box?  
14

15 Lori Walters: Well, I was interviewing an individual who arrived here in December of  
16 1950 and he had mentioned a place that he had frequented in Cape Canaveral called  
17 the Chatter Box that is no longer here, and I had never heard about it before.  
18

19 Jones: That's one I missed. I know the Mousetrap.  
20

21 Starr: Out here on the Bumper launches, range safety explosives were put on the two  
22 Bumper missiles. So, the first launches out here had the capacity to blow up the missile  
23 should it go off track. Was that used at White Sands?  
24  
25

1 Jones: Yes, it was just primacord wrapped around the fuel tanks. They don't really  
2 destroy the missile; they destroy its fuel capability. Blow the tanks up and the engine  
3 quits.

4  
5 Starr: So that was done at White Sands. Was that in response to the Juarez incident?  
6

7 Jones: No, it was in response to the Commander out there who insisted that he have a  
8 flight termination system.  
9

10 Starr: Then they had that on all the launches out there?  
11

12 Jones: As far as I know. I wasn't directly involved in that, but I knew that they had a  
13 flight termination system.  
14

15 Launius: I think that just about exhausts my list of questions. Are there any specific  
16 incidents or antidotes that you would like to share with us about Bumper or about  
17 anything else for that matter? Actually, there is one other question. You were telling us  
18 before we got you on camera about the panes of glass in the Blockhouse. Would you  
19 describe that on camera so we'll have it on tape?  
20

21 Jones: Yes. In looking at the shuttle pads; it used to be the Apollo pads, we're talking  
22 essentially the Launch Control Center being about 3 miles from the launch pad. In  
23 Complex 26 we were 300 feet, so the potential of injuring people in the Blockhouse, or  
24 in the Launch Control Center is greatly increased with the launch pad that close so yet  
25 you had to see what was going on. In fact, not a lot of people know that when the



1 Redstone, for example, was ignited, the liftoff was controlled by a second button and  
2 Debus or someone would look out through those windows and see the color of the  
3 flame. If it was a yellow flame, I'm sure some of you have a gas stove at home and you  
4 know that when you have a yellow flame coming out, you either have too much air or  
5 you have an insufficient mixture of gas and air, so they would shut it off until that was  
6 fixed. If it came out as a nice clear blue flame, they would go ahead and launch. Those  
7 windows provided the ability to see that. The windows in the Blockhouse, in Complex  
8 26, and also 5/6, there are six windows that look out on the pad. Three of them look  
9 straight ahead and three of them look up at about a 45-degree angle. Each of those  
10 openings is about 3 feet wide and about 1 foot high and each of those openings has  
11 three sets of windowpanes in them and each windowpane is 14 layers of glass. Much  
12 like your automobile windshield has 2, there are 14 here times three and there is a  
13 space of about 6 inches between the first and the second and the second and the third,  
14 so with that thickness and the layering, if there is a direct blast against it, it prevents it  
15 from breaking and it will just shatter. We had one incident that I can recall where two of  
16 the outside windows were shattered but nothing came through to number two or number  
17 three.

18  
19 Launius: All right, has anyone else got any specific questions they would like to ask?  
20 That exhausts all of mine.

21  
22 Jones: I can tell you one more story about White Sands. Someone said I should write  
23 a book about this, but there's not enough information for a book. At Biggs Field in  
24 Texas, which is next to Ft. Bliss, they used to have B-26's and these B-26's were rigged  
25 for towing target sleeves where antiaircraft guns could shoot at them and they could

1 score that way. While we were trying to perfect the beacon tracks for the 584 radars,  
2 we had a number of different kinds of beacons set up with antennas and we put them in  
3 the B-26 in the back. If you're familiar with the B-26, it's very small. I was selected to sit  
4 up in the aircraft in flight with the opening down below where the antennas were  
5 mounted; a different kind of cone antennas, single element antennas, and a beacon up  
6 here that would be connected through a signal generator and down to these various  
7 antennas. Right behind me in there was the reel of cable that they left in there that  
8 would hold the tow targets when they were using it as a tow target plane. And a big  
9 lever here where the person operating that particular thing would let the sleeve out or  
10 bring it back in, but in this case, we had to fly with the trap door open and we flew at  
11 2000 feet over Radar Station C at White Sands in different patterns. I was rigged so  
12 that I had a safety belt around me and I had a chute on behind me, very uncomfortable,  
13 and right behind me was the reel. We were going at about 5000 feet and they said go  
14 ahead and put on the cone antenna. So I reached around to try and get the cable for  
15 the cone antennae and I couldn't reach it, so I undid my safety belt, and I still couldn't  
16 reach it, so I was reaching like this and I finally got a hold of it and when I did, the D ring  
17 caught on the handle for the tow target thing and it filled the chute, and I went right out  
18 the opening. The opening was barely big enough for me to fit through but the only thing  
19 I had was a big gash on my finger here where I must have caught it going out there.  
20 So, the pilot is trying to call me and finally when they made the turn, they saw me  
21 floating down in the chute. Somebody told me I ought to write a book about that  
22 experience. That's an antidote.

23  
24 Launius: That's a great story.  
25